

PRESQUITE

NARRATIVE REPORT

JANUARY-DECEMBER 1964

Division of Wildlife Refuges

Narrative Report Routing Slip

Refuge PRESQUILLE

Year 1964

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PRESQUILE NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

FOR CALENDER YEAR 1964

PERSONNEL

REFUGE MANAGER

JAMES H. ROBERTS

REFUGE AID

JAMES J. PARLOW

MAINTENANCEMAN

RAYMOND P. MCFARLAND

CLERK-TYPIST (INTERMITTENT)

IRENE S. LIPCHAK
EOD 1-6-64

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I. GENERAL

A. Weather Conditions

The following table, taken from the Old Dominion Water Co., weather station in Hopewell, Va. reflects weather conditions on the Refuge.

	<u>Precipitation</u>			<u>Temperatures</u>	
	<u>This Month</u>	<u>Normal</u>	<u>Snowfall</u>	<u>Max. Temp.</u>	<u>Min. Temp.</u>
January	3.87	3.64	7 "	62	6
February	4.85	2.75	8 "	68	22
March	1.91	3.42	6 "	82	27
April	5.06	3.23		87	28
May	2.28	4.01		96	42
June	1.58	4.41		99	54
July	6.64	3.23		96	67
August	5.98	4.68		92	59
September	3.40	3.57		93	45
October	4.30	2.55		80	29
November	1.76	2.02	1 "	81	20
December	2.28	3.50		72	17
Total	43.91	41.01	22 " Extreme	99	6

Rainfall for the past year was 2.90 inches above the yearly normal of 41.01 inches and 7.65 inches above that of 1963. Also, 7.41 inches of the 7.65 inches of additional rainfall occurred during the spring and summer growing season presenting a far brighter picture from the crop production standpoint. While a summer long drought drastically reduced corn yields during the 1963 season, the 1964 corn yield was perhaps the best overall since activation of the refuge in 1953. Precipitation seemed to come at the right time and in sufficient amounts to insure excellent crop production, while at the same time, caused little delay in farming activities and other work programs.

Winter, Spring and Summer temperatures conformed close to the normal for this area. Some bitterly cold weather was experienced from time to time during January through mid-March with minimum temperatures to 6° recorded. A near normal twenty one inches of snow fell on three occasions as compared to only four inches in 1963.

Summer temperatures, for the most part, were quite mild and averaged some 4° below normal, although a high of 99° was recorded on several days in late June. The lower average temperatures were primarily due to the abundance of cloudy weather and accompanying rainfall. An extremely long Indian summer extended through October and well into November. The first hard frost occurred on November 19th, some twenty days beyond the average date. And too, the usual rush of

cold weather generally experienced in late November or early December did not materialize and with few exceptions, the winter so far has been the mildest in many years. In most years we close out the year with our soils, marshes, and waterways hard frozen, but through December 31st, we have had no significant ice formation, snow, or, for that matter, few signs of severe winter weather.

B. Habitat Conditions

1. Water

No impounded or other controlled use of water for habitat improvement is made on Presquile Refuge. Some 800 acres of first bottom hardwood swamp and 250 acres of fresh tidal marsh is watered and dewatered with each tide change. With minor exception, water levels of the James River have been normal or above throughout the year due to abundant rainfall and tidal action producing excellent conditions for growth and development of native waterfowl foods. Silting, pollution and alge growth did increase, however, during the summer months and one major and several minor fish kills were reported down river from the Refuge. Salinity readings remained well below the danger point to any native vegetation.

The highest monthly salinity readings of the James River waters for the year were as follows:

<u>Month</u>	<u>Date</u>	<u>Parts NaCl per million parts water</u>					
January	7	6	"	"	"	"	"
February	12	3	"	"	"	"	"
March	9	9	"	"	"	"	"
April	7	14	"	"	"	"	"
May	17	12	"	"	"	"	"
June	6	13	"	"	"	"	"
July	21	18	"	"	"	"	"
August	3	18	"	"	"	"	"
September	19	18	"	"	"	"	"
October	30	13	"	"	"	"	"
November	7	12	"	"	"	"	"
December	7	12	"	"	"	"	"

2. Food and Cover

The 1963 cultivated crops; corn, winter wheat, and buckwheat were completely utilized by wintering waterfowl before spring migration took place. Wheat strips were grazed to the extent that some acres did not recover with warm weather and additional nitrogen was required on wheat acreage scheduled for seed harvest. The crop of Pfister 12145 dwarf hybrid corn, although not manipulated in any way was well accepted and not one kernel remained at the time of migration.

Ducks, as well as geese were attracted to the standing corn for the first time since the no manipulation experiment began in 1961. This complete utilization strengthens our theoretical formula for training the Presquile goose flock to accept corn in the standing state; i.e., a combination of severe winter weather, hunting pressure and an absence of food elsewhere. Of course, you can apply this same formula to a trip farther south with some degree of accuracy but luckily this did not happen.

As mentioned earlier, 1964 was an excellent year for both cultivated and natural waterfowl foods, Refuge corn production averaged an estimated 85-90 bushels of cob corn per acre with some sites producing up to 100 bushels per acre. Deer, raccoon, and ground hog damage however cut heavily into the amount available for waterfowl. To date although still somewhat reluctant to do so, geese and ducks have utilized a total of 25 acres of the Pfister 12145 and Funks G-72 varieties of dwarf corn and indications are that this use will continue into the new year. Some areas however, are infested with high Jimson weed growth which came in after last cultivation and it's doubtful that complete utilization will take place on these areas. Eighty acres of winter wheat made excellent initial growth and have been grazed heavily by geese. The long Indian summer and mild winter weather prompted good regrowth of wheat and 109 acres of permanent grass-clover pastures. Overall use of Refuge cultivated crops was down somewhat from 1963 due to an abundance of food on adjacent plantations.

Tidal marshes, both on and off the Refuge produced bumper crops of wildrice, smartweed, wild millet and partridge pea. The late frost did curtail early use to some extent but as winter weather and favorable tides appeared the small refuge marshes were quickly invaded. The 50 acre east marsh is now completely utilized and the large north marsh is being used heavily.

With the exception of oak, the mast crop in the 800 acre hardwood swamp was excellent. This area with its many tidal creeks, ponds and small marshes receive the major portion of duck use on the refuge and while the oak crop failed altogether, this was no great loss in that oak is only of minor importance in total stand composition.

II. WILDLIFE

A. Migratory Birds

There were 7500 Canada geese with a sprinkling of Blue and Snow geese using the refuge at the beginning of the report year. Although refuge use decreased considerably after the close of the 1963 hunting season the birds held well in the general area through early March. Geese were scattered in small flocks from the Dutch Gap area some 15 miles upriver to the Brandon Plantation-Hog Island State

Refuge area approximately 25 miles down river but returned in large numbers to feed on refuge corn fields and browse pastures during extended periods of severe winter weather. The first indication of spring migration was noted on February 18 when only 4000 Canada geese could be located. This number then jumped to 8700, the peak for the year, during a two day interval the following week. We presume these birds were migrating from points farther south. From this point a slow decline in numbers present was evident through late March. The last geese of the 1963-64 season was observed on the census of April 4, 1964.

Unlike past years when duck population quickly dispersed from the refuge after the close of the hunting season, numbers remained near their peak through mid-February. Consequently, duck day use totaled 481,109 as compared to 301,455 for the corresponding 1963 period. Increased usage is attributed to bad weather, lack of food elsewhere and the fact that the refuge grain crop was made available to them by winter weathering, snowfall, and increased goose usage. It might be added that geese can wreck havoc on standing field corn and expose a great amount of corn to the more handicapped ducks. Peak duck numbers recorded during the early year period was 11,053 including 4500 black duck; 4000 mallard; 1000 wood duck, and 1200 pintail.

The summer period is a time of little waterfowl use on the refuge. A small nesting population of wood ducks accounted for an estimated 35 young raised in the hardwood swamp area. Seven broods, including 17 young were observed. Some 500 mourning doves were present during the summer months, up 25% from the previous year. They were no doubt attracted to a small acreage of ripening wheat, harvested for seed in early July. Eight nests were discovered on the spoils area outside the deer fence.

Canada geese returned to Presquille in mid September and by October 30th, 6000 Canadas were present. A peak population of 8500 Canada geese, 91 Blue geese and 15 Snow geese was recorded during the week of December 1, representing an increase of 1000 Canada geese over the corresponding 1963 period. Approximately 8000 Canada, 90 Blue and 15 Snow geese remained at the close of the year. Small numbers of ducks, including 1000 Black duck were present as early as October 4th, but sizeable population did not occur until December 1. Peak duck numbers recorded during the last week of the year were 9519 as compared to 11,124 during 1963. Duck day use was down 133,735 use days primarily due to late arrival. Duck species and population in the order of their abundance were as follows: Mallard, 4000; Black duck, 4000; Pintail, 1500; Wood duck, 500; Green winged teal, 200. Small numbers of Baldpate, Shoveler, Ruddy and other species were present throughout the period. Three Old squaw were observed on December 3, a new refuge record.

Both ducks and geese remained concentrated on the refuge and in the Curles Neck Marsh throughout the fall and winter period with very little scattering noted, denoting that food and habitat conditions in the immediate area were to their liking. Much more use of the James River adjacent to our north marsh was made by geese as a resting and roosting area, a fact that this manager finds puzzling. A new water based sand and gravel operation came in during the summer on the mainland in this area and we were quite concerned over its effect on waterfowl. However, geese were observed on numerous occasions drifting around moored gravel barges completely oblivious to the work activity nearby, and I can only say that geese are peculiar creatures. The Curles Neck Marsh, long the preferred site for roosting and resting by geese in the area received much less usage, a fact that has the owners quite concerned. Perhaps the firing line shooting became too much for the birds.

The population and behavior patterns of heron, egrets, gulls and other migratory birds remained unchanged from past periods considering seasonal changes and weather patterns. Two Common loons were observed during November, a rare species at Presquile. Only nine snipe were counted at any one time during December as compared to 44 in January 1964.

B. Upland Game Birds

A small flock of four turkeys, three hens and one tom was observed from time to time during the year in the Refuge swamp and marsh areas and around field borders. It is likely that this represents the total permanent refuge population. They were caught on several occasions this fall robbing duck traps of bait corn. No nests were found and no young-of-the-year birds were noted. The small island refuge offers little in a complete wild turkey habitat and turkeys seek out higher mainland sites for nesting activity. There is generally a small buildup of population during the Spring gobbler hunting season. All individuals seemed in excellent condition and no predator losses occurred.

Three covys of Bobwhite quail were present throughout the year. The nesting season was again successful and many broods were observed, but again as in the past, no buildup in total numbers was noted. Three covys including an estimated 30 to 40 birds is probably the carrying capacity for the species on the limited habitat under the present management system.

C. Big Game Animals

Deer is the only big game animal on Presquile Refuge and the high number present continue to be a problem in managing the area for waterfowl. Permanent or summer population were estimated at 60 to 75

animals and a hunting season and late winter population of perhaps 100 animals. While still high, population this year was down compared to the average. The highest count made to date was 67 individuals compared to 102 last year. Counts are made possible because the deer work around the deer fence into the fields by swimming or other methods and refuse to leave until chased out. Corn and other crop losses, including damage in the young growth stage are estimated at 15%. A browse line was much in evidence in the hardwood swamp area in the fall denoting a definite natural food problem. In late winter even the shrubbery around refuge buildings was eaten with relish. Agricultural crops, including an abundance of permanent pasture are more than adequate to offset natural food shortages however, and the deer herd remain in excellent condition. A total of 20 young fawn were observed during the summer, all presumably born on or near the refuge fields. Five losses were recorded: Two adults by accident in the deer fence; two adults seemingly from bloat after an overexposure to green corn; and one winter killed fawn.

have about a reduction

D. Fur Animals, Predators, Rodents And Other Mammals.

The major small mammals found on the refuge include raccoon, muskrat, grey squirrel, opossum, wood chuck, striped skunk, cotton tailed rabbit and red fox. Beaver can now be added to this list. A family of beaver appeared in the east marsh area in late spring and have seemingly set up house keeping. Only one of the animals were observed and we have no information on the actual number present but signs indicate two to four animals. Their cutting activity was observed along the entire island's east side.

Refuge personnel, with technical assistance from predator control personnel, initiated a ground hog control program during the early spring. A total of 128 active field burrows were treated with gas cartridges and approximately 200 burrows along the one and one-half mile of high river bank were hit with zinc phosphide treated apple quarters. Gas cartridges gave excellent results although retreatment was required, but the zinc phosphide control measure had little effect. The above figures were the total number of active burrows treated including retreatment, on the 300 acre farming area. No actual count of the number taken was possible but indications are that the overall population was reduced by one-third or 50 animals. Crop losses from this source dropped appreciably.

Quite a concentration of chucks here

Being an island with a complete water barrier normal dispersal of small mammals from the refuge is checked somewhat and therefore populations of all species are high, but with the exception of ground hog and raccoon, food and cover for all species were adequate and no predator pressure of undue competition with other wildlife species is evident. Ground hogs are in need of further, continuing control and raccoon number should be reduced drastically to prevent increasing

corn damage and to cut mortality in our duck trapping program. This work is planned for the future.

E. Hawks, Owls, Eagles, Crows etc.

Owls, redtailed hawks, redshouldered, marsh hawks and vultures were present in usual number throughout the year considering seasonal changes and weather conditions. Crow numbers remain small and do slight damage to refuge crops. Twenty five to 50 were present throughout the year. Two adult bald eagles were present the entire year indicating an active nest in the area but an extensive search by members of the Virginia Ornithology Society did not reveal its whereabouts. Only five bald eagles, two adults and three immature, are present at this time as compared to 13 present at the beginning of the year.

F. Other Birds

Small numbers of grackles, redwing and other blackbirds did some damage to sprouting corn during the spring and early summer and along with feral pigeons did considerable damage to ripening seed wheat in June. Damage was not of major consequence and of short duration so therefore no control action was taken. Removal of one of the old silos (see photo) at the dairy barn destroyed a favorite roosting spot for feral pigeons and helped in reducing the number of this pest.

G. Fish

There is no fishing within the refuge proper but some commercial and sports fishing is done in the James River surrounding the refuge. Large spring runs of shad and herring up the James resulted in excellent fishing for this species. Fair to good commercial catches of catfish were reported for the year. Stripped bass and other sport fish catches were the poorest in many years.

A large fish kill occurred in the James River in the Jordan Point area in August apparently the results of excessive alge growth although the exact cause was never determined. Species effected in the order of kill were primarily, silver perch or fliers, catfish, shad, herring, carp and other bait fish, and stripped bass. The total number killed was estimated by the Virginia Game & Fish Commission at 1,000,000 fish.

H. Reptiles

The refuge reptile population remained unchanged during the year. The hardwood swamp and marsh areas support high population of the more common harmless species of water snakes and turtle plus a few

cotton-mouth moccasin's. The Refuge upland remain relatively free from all snakes.

I. Disease

Refuge big game, small mammal and bird population seemed relatively free from disease and no serious losses have occurred.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

Farming activities accounted for the major operational program during the year. Waterfowl trapping and banding, enforcement patrols and animal control were also major operations items. Maintenance and rehabilitation work was carried out on the refuge farming equipment. Tractors, buildings, fences, roads and the ferry system as needed and as time permitted during the calender year.

Major maintenance activities and improvements made on the Refuge during the past year were as follows:

The 35 ft. concrete silo in front of the dairy barn, long an unsanitary eye sore was thrown into the old loading chute at the bottom of the silo and the site was filled and planted to grass. This removed a major pidgeon roost as well as a safety hazard.

The boat house floats, decking and walkways were completely rehabilitated during the year.

All window sills in quarters #3 were repaired and wall board of two closets were replaced and painted.

The roofs of quarters #3, the refuge shop and the dairy barn required repairs.

A large volume air compressor was acquired through surplus channels and a compressed air system was installed in the refuge shops.

Six miles of Island boundary were reposted. New type Blue Goose signs replaced the old type shield signs.

The old 1953 International Super M Tractor purchased at the time of activation of the Refuge finally required a complete over haul of the engine and power train. This after well over 8000 hours of operation. It continues to do an economical job so we have surely received our money's worth from this old workhorse.

The following items of new and surplus equipment was acquired to greatly improve refuge operations.

- a. 1964 Dodge $\frac{1}{2}$ ton pick up truck - new
- b. 1956 Chevrolet pickup
- c. Hobart 200 amp portable welder
- d. John Deere 2 row corn planter - new
- e. 9.8 Mercury outboard motor - new

Only minor repairs and painting were required on the Chevrolet pickup and other surplus items before putting them into use.

Three ferry cables were required, two from wear and one due to being cut by an unknown ship or tugboat. The ferry slips were cleaned of silt and debris on two occasions by the James River Transportation tug.

Eight Ohio type duck traps were constructed to replace worn out ones and to add to the number in use.

B. Plantings

1. Aquatic and Marsh Plants

No plantings made.

2. Trees and Shrubs

No plantings made.

3. Upland Herbaceous Plants

No plantings made.

4. Cultivated Crops

Cultivated crops grown, acreage, and fields planted were as follows:

a. Thirty acres of Pfister's 12145 dwarf corn in field 2, strips b and d, and 39 acres of Funk G-72 hybrid corn field 2 strip b and field 5, x and z. Yields were estimated at an overall production 85 bushels per acre for both varieties. Funk G-72 was the top producer with yields approaching 100 bushels of cob corn per acre on favorable sites. Pfisters averaged considerably less at 65 bushels per acre. To date, geese have utilized 25 acres of the total with the Pfister variety receiving heaviest usage. No mowing or other manipulation was undertaken to induce usage.

b. Eighty acres Seneca wheat in field 2 a and c, field 5, w and y and 8 a. Excellent germination and early growth was made on all fields.

Regrowth, after grazing by geese was also excellent due to abnormally warm late fall and winter temperatures.

c. Approximately 10 acres of Japanese buckwheat planted on 12' landing strips at 12 row intervals within the corn acreage. Utilization was complete on strips falling within the feeding area of geese. The strips were also well used by ducks and geese able to gain access into the corn.

d. Seventy acres of common ryegrass overplanted in the corn acreage provided additional winter browse and a cover on row cropped fields. Ryegrass, like buckwheat, was well utilized on areas where geese were attracted to the standing corn.

e. One hundred nine acres of ladino-Ia. white dutch clover, Kentucky 31 fescue-orchard grass pasture in fields 1, 3, 4, 6, 7 and 8b. Field 1 and 3 were plowed and replanted in early Spring and excellent stands of clover and a fair to good stand of grasses resulted. Spring planting was undertaken to avoid damage by grazing geese. Clover is the preferred browse plant of the local flock and all pastures have been heavily grazed. Little regrowth was allowed to occur.

C. Collections And Receipts

1. Seed and Other Propagules

Seeds purchased for refuge use during the calender year were as follows:

Pfiesters 12145 dwarf hybrid seed corn	6 bushels
Funk G-72 dwarf hybrid seed corn	9 bushels
Japanese buckwheat seed	1000 lbs.
Common ryegrass seed	2500 lbs.
Kentucky 31 fescue seed	250 lbs.
Ia. white dutch clover	150 lbs.

No wheat seed was purchased. Ten acres of Seneca wheat yielding 300 bushels was harvested from refuge fields in early July. Two hundred bushels were used for refuge seed requirements and 100 bushels transferred to Santee Refuge.

D. Control of Vegetation

The seventy acre refuge corn crop received both pre and post-emergence 2,4d treatment for control of Jimson weed and other broad leaf weeds. Application in each case was at the rate of one pound active ingredient of low volatile ester per acre. Direct kill was estimated at 80% after second treatment and regrowth of 70% occurred after the last cultivation. This percentage of regrowth is the exception rather than the rule, but this year the highly favorable weather conditions plus the long Indian summer allowed new seed germination and growth to

materialize after the corn was too high to cultivate or treat effectively. Little effect on corn yield was noted by late season weed growth but high weeds did present a barrier to waterfowl and consequently, utilization of the corn crop was curtailed in some field areas.

Two sprayings of 12 acres in field 8a and spot treatment of eight acres in other fields with five lb. acid equivalent per acre, Dalapon for control of Johnson grass was 50-60% effective. Dalapon treatment was coupled with mechanical disking in a continuing effort to eradicate this troublesome pest.

All chemical applications were accomplished with tractor mounted, Hanson PTO sprayer with 100 gallon capacity.

Cost of the 1964 weed control program was as follows:

2,-4d Treatment	Pre and Post-emergence
38 gals. 2,-4d	\$ 72.20
Labor	80.00
Misc.	45.71
Total	<u>\$197.91</u>
Cost per acre	<u>\$ 2.73</u>

Dalapon Treatment of Johnson Grass

100 lbs. Dalapon	\$ 90.00
Labor	129.00
Misc.	31.90
Total	<u>\$250.90</u>
Cost per acre	<u>\$ 12.55</u>

E. Planned Burning

Nothing to report.

F. Fires

Nothing to report.

IV. RESOURCE MANAGEMENT

A. Grazing

No grazing on refuge.

B. Haying

No haying on refuge.

C. Fur Harvest

Nothing to report.

D. Timber Harvest

Nothing to report.

E. Commercial Fishing

None on refuge.

F. Other Uses

There were no special use permits outstanding as of December 31, 1964.

V. FIELD INVESTIGATION AND APPLIED RESEARCH

A. Progress Report

Field trapping activities accounted for a total of 73 Canada Geese and 501 ducks of all species banded during the calender year. Our Goose trapping efforts were quite disappointing, especially in the light of last year's record catch of 533 geese trapped and banded. Unlike last year when we could call our shots, so to speak, geese simply were not interested in the net trap area although the sites were identical to last years and the time and effort put in considerably more.

Of the total ducks banded, 287 were Black, 204 were Mallards, 7 Black-Mallard Cross es and one each, American Widgeon, Pintail and Woodduck. Ducks were trapped beginning in early October through December 8th in the hardwood swamp area using 16 Ohio type portable duck traps. Losses from raccoon were minor but increased during the last ten days of trapping. This and the danger of icing suspended trapping operations for the year. The ducks banded during the year represent an approximate 300% increase in the total ducks banded at Presquile since activation of the Refuge. Our trapping and banding efforts will continue into the new year.

Following table summarizes banding data^{for Canada Geese}/as it appears in the Refuge files:

<u>Band No.</u>	<u>Date Banded</u>	<u>Banding Location</u>	<u>Area Retaken</u>	<u>Date</u>
518-67663	11-14-61	Hickory Corners, Mich.	Presquile	11-13-63
558-72130	11-13-63	Presquile	Smyrna, Del.	12-17-63
528-55725	3-27-62	Seneca Falls, N.Y.	Presquile	12-27-63

<u>Band No.</u>	<u>Date Banded</u>	<u>Banding Location</u>	<u>Area Retaken</u>	<u>Date</u>
508-92227	10-30-62	Ky. Woodland, Ref, Ky.	Presquile	12-23-63
528-53706	2-19-60	Santee Ref., S.C.	"	12-15-63
508-66573	12-6-62	Linesville, Pa.	"	1-1-64
498-51695	4-6-55	Basom, N.Y.	"	11-27-63
508-81279	4-15-59	" "	"	11-6-63
558-72098	11-29-63	Presquile	Rupert House, Que.	4-28-64
558-72118	11-13-63	"	Woodland Beach, Del.	1-9-64
558-06717	3-22-63	"	Massy, Md.	12-13-64
558-06726	3-22-63	"	Kent Narrows, Md.	11-25-63

Refuge personnel also banded 86 mourning doves during the preseason period, June through August utilizing four traps. Ten returns, all from the local area have been received.

VI. PUBLIC RELATIONS

A. Recreational Use

There are no established recreational areas on Presquile. Tours of the highland area are conducted to acquaint the visiting public with management objectives and to afford the public an opportunity to view refuge wildlife population in a natural environment. Boating, water skiing and fishing are enjoyed by a great many people in the Island area during the summer months but no accurate count of total use is available. Four tours of the Refuge were conducted by refuge personnel.

B. Refuge Visitors

There were 144 official and unofficial visitors to the Refuge during the calender year.

Official visitors, including dates, business, etc. were as follows:

2-7-64	Mr. L. S. Givens	Supervisor Branch of Refuges Atlanta, Ga.,	Inspection
2-7-64	Mr. John D. Findlay	Chief Division of Wildlife Atlanta, Ga.,	Inspection
3-2-64	Mr. Donald Fortenbury	Predator and Rodent Control Agent Harrisonburg, Va.,	Animal Control

5-4-64 Messers.	National Park	Inspect
E. W. Aschmann	Service	Quarters #1
James W. Holland	Richmond, Va.,	
5-15-64 Mr. Parker Smith	Branch of	Banding
	Enforcement	Program
	Atlanta, Ga.,	
Mr. Robert Bain	Branch of	"
	Enforcement	
	Richmond, Va.,	
Mr. Don Daniel	Branch of	"
	Enforcement	
	Williamsburg, Va.,	
9-30-64 Mr. Bob Young	Realty	Rent Survey
	Atlanta, Ga.,	
11-12-64 Manager William	Pea Island Refuge	Corn
Goode and	Manteo, N.C.	Transfer
Maintenanceman		
Tolar		

Unofficial visitors as they appear on the Refuge record, were as follows:

1-8-64 Joe Bellamy	Assistance with
State Wildlife Officer	Law Enforcement
3-10-64 Mr. M. L. Ashley, Petersburg, Va.,	Fertilizer Delivery
3-14-64 Mr. Joe Bellamy and 79 Boy Scouts	Tour
and two adults, Richmond, Va.,	
5-24-64 Mr. & Mrs. Dallas Coons, Richmond, Va.,	Quarters #1
6-19-64 Mr. Ben Kanak, Prince George, Va.,	Nitrogen Delivery
6-29-64 Mr. Rudolph Horak, Presque Isle Farm	Wheat Harvest
Chester, Va.,	
10-23-64 Mr. Marshall Jones and 16 members	Tour
of Chester, Va., 4H Club	
10-24-64 Mr. Jim Turner and 11 young members	Tour
United Church Of Christ Sunday School	
11-4-64 Mr. George Amos	Soil
Soil Scientist, VPI	Mapping
11-15-64 Mr. Garland Foster, State Wildlife	Visit
Officer, Prince George, Va.,	
11-16-64 Mr. H. Mistr and 14 members James	Tour
River Soil Conservation District	
and State Association	
12-8-64 Mr. T. W. Ford, Hopewell, Va.,	Sale of Quarters #1
12-8-64 Mr. Dan Aldridge, Hopewell, Va.,	Visit
12-20-64 Mr. Fred Scott	Christmas Bird Count
Virginia Ornithological Society	

C. Refuge Participation

Refuge Manager Roberts assisted Agents Bain and Daniels with trapping of sea gulls for the opening ceremonies of the Cheasapeake Bay Bridge Tunnel during the week of April 14, 1964. The cannon net trap was used and some 100 gulls were trapped and released at the close of the ceremony.

Four Refuge tours were given during the year by refuge personnel.

The Refuge Manager gave a short talk on refuge objectives and presented the film, Behind The Flyways to 31 members of the Ford-Midway Ruritan Club on November 5, 1964.

Refuge Manager Roberts presented the Memorandum Of Agreement for Soil And Moisture Conservation between The Dept. Of The Interior and the Soil Conservation Districts to the James River District Supervisors on May 5, 1964 and again to the State Association on June 19, 1964. Both the local District and the State Board returned a favorable vote on the proposal and an agreement is forthcoming.

Manager Roberts also conducted District Supervisors and members of the State Board on a Refuge tour on November 16, 1964.

The Refuge Manager was active in the Hopewell Junior Chamber of Commerce and the Boy Scouts of America during the past year.

D. Hunting

There is no public shooting area on the Refuge. Hunting success on adjacent areas was reported as poor for all species. Goose kills reported for adjacent areas were as follows:

<u>Area</u>	<u>Number Killed</u>
Curles Neck Farm and Marsh	202 Canada Geese
Turkey Isle Creek Marsh	19 " "
Presque-Isle Farm	37 " "
Shirley Plantation	6 " "
Meadowville Plantation	61 " "
Varina Plantation	32 " "
Epps Island Plantation	51 " "
Dutch Gap and other River areas	11 " "
Brandon Plantation area	34 " "
Total Known Kill	453 " "
Estimated Goose Kill	600 Canada Geese

No information is available on number of ducks killed on adjacent areas.

E. Violations

One violator was apprehended. Gene Pruitt, age 15, was apprehended while hunting in the Refuge North Marsh on December 2. In view of the boys age no action other than a warning to both the boy and his parents was undertaken.

Two standby chain hoists on the mainland ferry ramp were stolen on October 16. Extensive search by refuge personnel, local police and the FBI has, as yet, not located their whereabouts. The hoists were manually operated and used only when power failure deactivated the electric system.

Military and civilian helicopters created quite a problem during December intentionally buzzing and rallying geese off the refuge fields and nearby marshes. Contact with responsible military authorities, the local FFA office and civilian helicopter operators in the area soon ended this activity, although one unidentified helicopter continues to give trouble. This one made two late evening landings on the Refuge but it was too dark for any identification and we have been frustrated in our attempts to catch this violator.

F. Safety

1. There were no accidents during the reporting period and no lost time accident has occurred at Presquile since activation date of March 11, 1953; a total of 55,216 permanent employee hours.

2. As of December 31, 1964, there were 3,793 calender days without a lost time accident.

3. All Refuge water safety devices were either repaired or replaced during the year.

4. All fire extinguishers received their annual charge or checkup.

5. All Refuge motor vehicles and farm machinery received two safety checks during the period as well as the quarters and buildings.

6. A new motor was installed in the furnace in quarters #3 and other repairs were made.

7. Removal of the old hurricane damaged silo at the dairy barn removed a serious safety hazard.

8. Subjects covered by the 12 regular Safety Meetings held each month were as follows:

January	Safety Message No. 63-5, Safety - The Commissioner's View
February	Safety Leaflet No. 16, 1963, The Year That Was
March	Slides on Prevention Of Shock And Safety In The Use Of Hand Tools
April	Safety In Farming Operations
May	Safety Requirements Handbook: Part 1.6., Part 1.6.5.1
June	Ways And Means To Control Grass Fires
July	Safety Away From The Job
August	Fish And Wildlife Service Manual Report On Safety for 1963
September	Fire Prevention
October	Electric Safety
November	Safe Use Of Hand Tools
December	Review Of Proper Lifting Techniques

VII. OTHER ITEMS

A. Items of Interest

Mrs. Irene Lipchak was appointed to the Clerk-Typist position and entered on duty on January 6, 1964 and has been a great help in the Refuge office.

Maintenanceman Raymond McFarland attended the Law Enforcement Workshop held at Mattamuskeet Refuge during the first week in August.

B. Photographs

Photographs taken during the year follows the signature and the Narrative Report Forms.

C. Signature

Submitted By:

James H. Roberts
James H. Roberts
Refuge Manager

Dated January 18, 1965
Approved by:

Regional Office

Victor W. Key
Acting Regional Supervisor
Jan. 20, 1965

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3 -1750a

Cont. NR-1
(Re: March 1953)WATERFOWL
(Continuation Sheet)

REFUGES., R.C.

FILE COPY

REFUGE Presquile National Wildlife RefugeMONTHS OF January TO April, 1964

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production : Broods: Estimated : seen : total	
	11	12	13	14	15	16	17	18			
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada	1,000	500	3,500	300					455,112		
Cackling											
Brant											
White-fronted											
Snow									672		
Blue									3,150		
Other											
Ducks:											
Mallard	50	30	25						123,942		
Black	300	75	13						201,474		
Gadwall			4						28		
Baldpate			200						4,228		
Pintail	100	200	200						52,507		
Green-winged teal			17						147		
Blue-winged teal											
Cinnamon teal											
Shoveler									1,239		
Wood	150	150	50						47,866		
Redhead											
Ring-necked			39						868		
Canvasback											
Scaup											
Goldeneye											
Bufflehead											
Ruddy	250	50	100						5,615		
Other											
C. Merganser	50	10	50						5,880		
Hooded Merganser									315		
Coot:									630		

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	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans			
Geese	458,934	8,700	
Ducks	481,109	11,053	
Coots	630	74	

SUMMARY

Principal feeding areas Refuge fields, mud flats, marsh and swamp areas and adjacent private fields, marshes and swamps.

Principal nesting areas _____

Reported by

James H. Roberts

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

WATERFOWL

REFUGE Presquile National Wildlife Refuge

MONTHS OF January TO April, 1964

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
<u>Swans:</u>										
Whistling Trumpeter										
<u>Geese:</u>										
Canada	7,500	7,000	7,000	7,000	5,500	5,500	4,000	3,500	8,700	4,000
Cackling										
Brant										
White-fronted										
Snow	12	17	17	13			17	13	3	3
Blue	65	104	104	80			50	50		
Other										
<u>Ducks:</u>										
Mallard	4,000	3,000	3,000	2,000	1,000	1,000	1,000	1,000	800	800
Black	4,500	4,000	4,000	4,500	2,500	2,500	1,500	1,500	1,700	1,700
Gadwall										
Baldpate	100	100	100						50	50
Pintail	1,200	900	900	400	400	400	900	900	500	500
Green-winged teal	25									
Blue-winged teal										
Cinnamon teal										
Shoveler	78	50	50							
Wood	900	1,000	1,000	900	500	500	500	500	350	350
Redhead										
Ring-necked	25								30	30
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy	100	150	150	150						
Other										
<u>H. Merganser</u>	25	11	11	35	150	150	150			
<u>Foot:</u>	100	75	75	74	9	9				

WATERFOWL
 (Continuation Sheet)

FILE COPY

REFUGEE Presquile N W R MONTHS OF May TO August, 19 64

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen: total
	11	12	13	14	15	16	17	18		
Swans:										
Whistling										Key
Trumpeter										Rudolph
Geese:										Van Dyck
Canada										Ball
Cackling										Carter
Brant										Hanna
White-fronted										Leah
Snow										Denton
Blue										Forrest
Other										Adams
Ducks:										Phillips
Ballard	50	100	125	125	125	200	200	250	9450	Pace
Black	30	30	30	50	100	100	100	100	4410	Burke
Endwall										Phillips
Baldpate										
Mintail										
Green-winged teal										
Blue-winged teal										
Cinnamon teal										
Shoveler										
Wood	35	35	35	35	55	55	55	75	6300	27 40
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other										
Cont:										

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	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans			
Geese			
Ducks	20,160	425	40
Coots			

SUMMARY

Principal feeding areas 800 acre hardwood swamp and 250
acre north and east marsh.

Principal nesting areas 800 acre hardwood swamp.

Reported by

James H. Roberts

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

Regional Office, Atlanta, Ga.
 Wildlife and Sport Fisheries
 MAIL ROOM
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WATERFOWL

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REFUGE Presquille N.W.R. MONTHS OF May TO August, 19 64

(1) Species	(2) Weeks of reporting period									
	:	:	:	:	:	:	:	:	:	:
	1	2	3	4	5	6	7	8	9	10
<u>Swans:</u>										
Whistling										
Trumpeter										
<u>Geese:</u>										
Canada										
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
<u>Ducks:</u>										
Mallard	8	8	8	8	8	8	27	31	30	30
Black	10	10	10	10	10	10	10	10	10	10
Gadwall										
Baldpate										
Pintail										
Green-winged teal										
Blue-winged teal										
Cinnamon teal										
Shoveler										
Wood	35	35	35	55	55	55	55	55	55	55
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other										
<u>Goot:</u>										

W A T E R F O W L

REFUGE Presquille N W R

MONTHS OF September TO December, 19 64

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
<u>Swans:</u>										
Whistling										
Trumpeter										
<u>Geese:</u>										
Canada			50	150	300	1200	1800	3500	6000	6500
Cackling										
Brant										
White-fronted										
Snow						1	5	5	7	7
Blue							20	20	50	50
Other										
<u>Ducks:</u>										
Mallard						400	700	700	700	700
Black						1000	1200	1200	1200	1200
Gadwall										
Baldpate										
Pintail						200	400	400	100	100
Green-winged teal							100	100	100	100
Blue-winged teal						30				
Cinnamon teal										
Shoveler										
Wood						150	300	300	300	300
Redhead										
Ring-necked							100	100	100	100
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy							50	50	50	50
Other										
H Merganser									12	12
<u>Coot:</u>										
American Coot									25	25

3 -1750a

Cont. NR-1

(Rev. March 1953)

W A T E R F O W L
(Continuation Sheet)

REFUGE Presquile NWRMONTHS OF September TO December, 19 64

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total	
	11	12	13	14	15	16	17	18			
Swans:											
Whistling Trumpeter											
Geese:											
Canada	6500	3000	5000	8500	8500	8000	8000	8000	525,056		
Cackling Brant											
White-fronted Snow	7		13	13	8	8	14	15	756		
Blue Other	50		81	91	90	90	90	90	5,159		
Ducks:											
Mallard	700	800	1000	1500	1500	1500	3000	4000	120,393		
Black	1200	2000	1700	3000	3000	3000	4000	3500	190,372		
Gadwall		10						20	210		
Baldpate		50						6	392		
Pintail	100	200	500	500	1000	1000	500	1500	45,500		
Green-winged teal	100				100	100	200		6,272		
Blue-winged teal									210		
Cinnamon teal											
Shoveler		50	30	100	100	100	100	29	3,577		
Wood	300	200	300	300	500	500	300	300	28,301		
Redhead											
Ring-necked Canvasback									2,800		
Scaup Goldeneye											
Bufflehead		25	25						350		
Ruddy	50	100	50	50	50	50	100	25	4,704		
Other Old Squaw					3	3			42		
H. Merganser	12						25	4	455		
C. Merganser			50	50	100	100	100	135	3,738		
Coot:											
American coot	25							300	2,604		

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	:	:	:
Geese	530,971	2,604	:
Ducks	407,316	2,519	:
Coots	2,604	300	:

SUMMARY

Principal feeding areas 250 acre marsh; 252 acres cultivated croplands; 812 acres hardwood swamp.

Principal nesting areas 812 acre hardwood swamp. (woodducks)

Reported by James H. Bilets

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

MIGRATORY BIRDS
(other than waterfowl)

Refuge Presquile

Months of January to April 1964

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Great Blue Heron	3	1/1	22	4/30	22	4/30				25
American Egret	2	4/30	2	4/30	2	4/30				2
Snowy Egret	3	3/15	3	3/15	2	4/30				3
Common Snipe	47	1/30	47	1/30	15	2/13				75
II. <u>Shorebirds, Gulls and Terns:</u>										
Herring Gull	20	1/1	50	4/30	50	4/30				75
Ringbilled Gull	10	1/1	1000	4/30	1000	4/30				1000

(over)

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(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u>					
Mourning dove	9	1/30	1500	3/30	300
White-winged dove				4/30	500
IV. <u>Predaceous Birds:</u>					
Golden eagle					
Duck hawk					
Horned owl	1	2/13	1	2/13	2
Magpie					
Raven					
Crow	20	1/1	50	4/30	50
Bald Eagle	11	1/30	11	4/30	11
Reported by <u>James H. Roberts</u>					

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
 II. Shorebirds, Gulls and Terns (Charadriiformes)
 III. Doves and Pigeons (Columbiformes)
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

MIGRATORY BIRDS
(other than waterfowl)

Refuge...Presquile N.W.R.....

Months of...May.....

to August.....1956

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Great Blue Heron	4	5/4	37	7/10	22	8/28	none observed			37
American Egret	2	5/4	19	7/10	11	8/28	"	"		30
Snowy Egret	5	7/10	5	7/10	1	8/28	"	"		5
Little Blue Heron	1	6/16	1	6/16	1	6/16	"	"		2
Little Green Heron	3	6/16	3	6/16	2	8/28	"	"		5
Cattle Egret	4	7/10	4	7/10	4	7/10	"	"		5
Louisiana Heron	2	8/28	2	8/28	2	8/28	"	"		2
II. <u>Shorebirds, Gulls and Terns:</u>										
Ring Billed Gull	100	5/1	300	6/16	20	8/28	None observed			300

(over)

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(1)	(2)		(3)	(4)		(5)		(6)
III. <u>Doves and Pigeons:</u>								
Mourning dove	50	5/1	700	7/10	400	8/31	30	50
White-winged dove								500
IV. <u>Predaceous Birds:</u>								
Golden eagle								
Duck hawk								
Horned owl								
Magpie								
Raven								
Crow	15	5/1	30	7/10	10	8/31		30
Reported by <i>James H. Roberts</i>								

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
 II. Shorebirds, Gulls and Terns (Charadriiformes)
 III. Doves and Pigeons (Columbiformes)
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

MIGRATORY BIRDS
(other than waterfowl)

Refuge.....Presquile N.W.R.....Months of September.....to December.....1956

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Great Blue Heron	3	9/1	17	9/13	7	12/30				15
American Egret	21	9/13	21	9/13	2	11/1				5
Snowy Egret	1	9/13	1	9/13	1	9/13				1
Common Loon	2	11/19	2	11/19	2	11/19				—

(over)

(1)	(2)		(3)		(4)		(5)		(6)
III. <u>Doves and Pigeons:</u>									
Mourning dove	500	9/1	500	9/1	100	12/30			100
White-winged dove									
IV. <u>Predaceous Birds:</u>									
Golden eagle									
Duck hawk									
Horned owl									
Magpie									
Raven									
Crow	10	9/1	25	11/13	25	11/13			50
Bald Eagle	1	11/13	5	12/20	4	12/30			5
Reported by <u>James H. Roberts</u>									

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
 II. Shorebirds, Gulls and Terns (Charadriiformes)
 III. Doves and Pigeons (Columbiformes)
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1750b

Form NR-1B

(Rev. Nov. 1957)

UNITED STATES

DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

BUREAU OF SPORT FISHERIES AND WILDLIFE

WATERFOWL UTILIZATION OF REFUGE HABITATRefuge Presquile NWR For 12-month period ending August 31, 1964Reported by James H. Roberts Title Refuge Manager

(1)	(2)	(3)	(4)	(5)
Area or Unit	Habitat		Breeding	
Designation	Type Acreage	Use-days	Population	Production
	Crops	Ducks		
	Upland	Geese	35	40
	Marsh	Swans	0	0
	Water	Coots		
	Total	Total		
	Crops	Ducks		
	Upland	Geese		
	Marsh	Swans		
	Water	Coots		
	Total	Total		
	Crops	Ducks		
	Upland	Geese		
	Marsh	Swans		
	Water	Coots		
	Total	Total		
	Crops	Ducks		
	Upland	Geese		
	Marsh	Swans		
	Water	Coots		
	Total	Total		
	Crops	Ducks		
	Upland	Geese		
	Marsh	Swans		
	Water	Coots		
	Total	Total		
	Crops	Ducks		
	Upland	Geese		
	Marsh	Swans		
	Water	Coots		
	Total	Total		
	Crops	Ducks		
	Upland	Geese		
	Marsh	Swans		
	Water	Coots		
	Total	Total		
	Crops	Ducks		
	Upland	Geese		
	Marsh	Swans		
	Water	Coots		
	Total	Total		

(over)

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3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge Presquile Months of January to April, 19 64

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Bobwhite Quail	Fields & Swamp edge 300 acre.	10			1-1				30	
Wild Turkey	Hardwood Swamp, Marsh & Field Borders 1330 acres	88			2 males 3 females				15	Turkey population shared with outside areas.

XERO
COPY

XERO
COPY

XERO
COPY

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge Presquile NWR Months of May to August, 19 64

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Bobwhite Quail	field borders and swamp edge (300 acres)	10	20	15	1-1		no removals		30	
Wild Turkey	entire Island (1329 acres)	130	2	2	1 male 1 female		no removals		10	Turkey population intermittent, shared with adjacent areas.

XERO
COPY

XERO
COPY

XERO
COPY

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge Presquile N.W. Months of September to December, 19 64

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'd.	Estimated Total		Hunting	For Re- stocking	For Research		
Common Name					Percentage				Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Bobwhite Quail	300 acre field and swamp edge	10			1-1	No	Removals		30	
Wild Turkey	1320 acre marshes, swamp and fields.	132			1 male 2 females	No	Removals		10	Turkey population shared with adjacent plantations.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

Refuge Prasquille N W RCalendar Year 1964

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
Common Name	Cover types, total Acreage of Habitat	Number	Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
White tailed deer	812 acres hardwood swamp; 250 acres tidal marsh; 300 acres agricultural upland.	25	0	0	0	0	0	0	2	0		141	75	1 Male 7 Female

Remarks: Four deer killed in Refuge deer fence.

Reported by James H. Roberts

INSTRUCTIONS

Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- (2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated total number of young produced on refuge.
- (4) REMOVALS: Indicate total number in each category removed during the year.
- (5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE POPULATION: Give the estimated population of each species on the refuge at period of its greatest abundance and also as of Dec. 31.
- (8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

116000

1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge Presquillo

Year ending April 30, 1964

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs					(5) Total	
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	Popula- tion
								Permit Number	Trappers Share	Refuge share				
Raccoon	Entire Island 1330 acres	6.5												200
Muskrat	Marsh, river & creek bank 600 acres	6												100
Stripped Skunk	Field and borders 300 acres	5												60
Grey Squirrel	800 acre, hardwood swamp	10												80
Ground hog	Fields, border & riverbank 300 acre	1.5			50%									150
Red Fox	Entire Island 1330 acres.	133												10
Cottontail rabbit	Fields and border 300 acre.	3												100

• List removals by Predator Animal Hunter

* List removals by Predator Animal Hunter

REMARKS: Ground hogs removed by Predator Control Agent and Refuge personnel from field terraces, road banks etc. by use of Service Gas cartridge.

Reported by

James H. Roberts

XERO
COPY

XERO
COPY

XERO
COPY

Refuge Presquile N W RYear 1964**Botulism****Lead Poisoning or other Disease**Period of outbreak None

Period of heaviest losses _____

Losses:

	Actual Count	Estimated
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Number Hospitalized	No. Recovered	% Recovered
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Areas affected (location and approximate acreage) _____

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.) _____

Condition of vegetation and invertebrate life _____

Remarks _____

Kind of disease None

Species affected _____

Number Affected

Species	Actual Count	Estimated
_____	_____	_____
_____	_____	_____
_____	_____	_____

Number Recovered _____

Number lost _____

Source of infection _____

Water conditions _____

Food conditions _____

Remarks No disease.

PUBLIC RELATIONS

(See Instructions on Reverse Side)

Refuge Presquile NWRCalendar Year 1964

1. Visits

a. Hunting None b. Fishing None c. Miscellaneous 144 d. TOTAL VISITS 144

1a. Hunting (on refuge lands)

TYPE	HUNTERS	ACRES	MANAGED BY
Waterfowl			
Upland Game			
Big Game			
Other			

Number of permanent blinds _____

Man-days of bow hunting included above _____

Estimated man-days of hunting on lands adjacent to
refuge 1000

1b. Fishing (area open to fishing on refuge lands)

TYPE OF AREA	ACRES	MILES
Ponds or Lakes		
Streams and Shores		

1c. Miscellaneous Visits

Recreation 121 Official 12Economic Use 11 Industrial None

2. Refuge Participation (groups)

ON REFUGE OFF REFUGE

TYPE OF ORGANIZATION	NO. OF GROUPS	NUMBER IN GROUPS	NO. OF GROUPS	NUMBER IN GROUPS
Sportsmen Clubs			1	47
Bird and Garden Clubs				
Schools	1	16		
Service Clubs			1	31
Youth Groups	2	70		
Professional-Scientific				
Religious Groups	1	11		
State or Federal Govt.	1	13	2	21
Other				

3. Other Activities

TYPE	NUMBER	TYPE	NUMBER
Press Releases		Radio Presentations	
Newspapers (P.R.'s sent to)		Exhibits	
TV Presentations		Est. Exhibit Viewers	

INSTRUCTIONS

Item 1: Total of a, b, and c, equal d.

"Visit" - definition. Any person who is on refuge lands or waters during a day or part thereof for the purpose of: hunting, fishing, bird-watching, recreation, business or economic use, official visit, or similar interest. INCLUDE - those who stop within the refuge while traveling on a public highway because of an interest in the area. EXCLUDE - persons engaged in oil or other industry not directly related to the refuge, persons using refuge as most direct route or principal avenue of traffic, and those boating on navigable rivers or the Intercoastal Canal, unless they stop to observe wildlife on the refuge.

Computing visits. Where actual counts are impractical, "sampling" is used with midweek and week-end samples varied by season or weather. A conversion factor of 3.5 (of passengers per car) is used when accurate figures are not available. Each refuge will develop a conversion factor for boats based on range of usage. Count a camper once for each 24-hour period or fraction thereof.

Item 1a: Acres - of refuge open for each type of hunting.

Managed hunts require check in and out of hunters, issuance of permits, or assignment of blinds.

Other - INCLUDE crow, fox, and similar hunting.

Lands adjacent to refuge. Normally considered within 1 mile or less of boundary, unless established sampling procedures cover a wider area. For big game hunting, the distance may be greater.

Item 1b: Acres of streams open to fishing, if practical; otherwise just miles open. Information on "shores" is primarily for coastal fishing.

Item 1c: Recreation. INCLUDE photography, observing wildlife, picnicking, swimming, boating, camping, visitor center use, tours, etc. TOTAL Recreation, Official, and Economic Use visits under Item 1.

Industrial. INCLUDE persons engaged in industry, i.e., oil industry or factories. EXCLUDE these from Item 1.

Item 2: INCLUDE the "On Refuge" groups in Items 1c and 1. In "Off Refuge" column include only those group meetings in which refuge employees actually participate. EXCLUDE these from Items 1c and 1.

Item 3: Exhibits - INCLUDE displays, fairs, parades, and exhibits OFF the refuge; EXCLUDE those ON.

Refuge Presquile NWR

Calendar Year 1964

Facilities

Picnic areas: areas 0 tables 0 fireplaces 0 toilets 0
drinking water 0 shelters 0

Swimming: designated areas 0 bathhouses 0

Boating: launching sites 0 rental facilities 0
service facilities 0
are motors allowed 0 maximum horsepower 0

Camping: permitted 0 or not permitted 0
tent camps 0 total capacity 0
group camps 0 total capacity 0
hunter camps 0 total capacity 0
trailer camps 0
lodges 0 capacity 0
cabins 0 motels 0 total units 0

Tours: Season Summer & Winter frequency 5-10
self-guided nature trails no is trail leaflet available? no
self-guided auto tour route no is tour leaflet available? no

Access points: estimate number in public use 1

General - Brief statement of two to five lines on recreational opportunities available on refuge (suitable for inclusion in refuge leaflets or briefing reports).

Recreational opportunities are limited to prearranged guided tours due to complicated transportation to the area.

(Over)

Refuge _____ Calendar Year 1964 _____

Facilities

Picnic _____
stems: _____
drinking water _____

Swimming: _____
designated areas _____

INSTRUCTIONS

Supply numbers wherever appropriate. These may be estimated if necessary.

Where operation and maintenance is supervised by this Bureau, but the responsibility of a concessioner, group, or agency, indicate by a single *. Where supervision of such activities is by another Federal Bureau indicate by two **.

Camping: _____

Tours: _____

Access _____

points: _____

General - Brief statement of two to five lines on recreational opportunities available on refuge (suitable for inclusion in refuge leaflets or briefing reports).

Recreational opportunities are limited to prescribed guided tours and to completed interpretation to the area.

3-1757
Form NR-7
(April 1946)

PLANTINGS
(Marsh - Aquatic - Upland)

Refuge Presquile N W R Year 1946

Species	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount & Nature of Propagules	Date of Plant- ing	Survival	Cause of Loss	Remarks
No plantings made.								

TOTAL ACREAGE PLANTED:

Marsh and aquatic.....
Hedgerows, cover patches.....
Food strips, food patches.....
Forest plantings.....

3-1758
Form NR-8
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Presquile

County Chesterfield

State Virginia

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
P. G. A. 12145 Hybrid corn					30	2,200 bu.	30	Browse crop Seneca wheat Common ryegrass	80. 69
Funk G 72 Hybrid corn			5	400 bu.	39	3,500 bu.	44	Established pasture	108
Japanese buckwheat					12	350 bu.			
Seneca wheat			10	300 bu.					
								Fallow Ag. Land	None

No. of Permittees: Agricultural Operations None Haying Operations None Grazing Operations None

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
None				1. Cattle	None			
				2. Other				
				1. Total Refuge Acreage Under Cultivation				257
Hay - Wild				2. Acreage Cultivated as Service Operation				

(Rev. Jan. 1950)
Form NR-8
3-1128

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

Refuge
Cultivated Crops
Green Crops
Hay - Improved
(Specify Kind)
Hay - Improved

Ref - NR-8

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green feed produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

REFUGE GRAIN REPORT

Refuge Presquille N. V. R.Months of January through December, 1956

(1) VARIETY*	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED OR SUITABLE USE*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Seneca wheat	0	300 bu.	300 bu.	100 bu.	200 bu.		300 bu.	0			
Common ryegrass	0	100 bu.	100 bu.		100 bu.		100 bu.	0			
Ky. 31 fescue	0	40 bu.	40 bu.		40 bu.		40 bu.	0			
Orchard grass		25 bu.	25 bu.		25 bu.		25 bu.				
Japanese buckwheat	0	20 bu.	20 bu.		20 bu.		20 bu.				
Pfisters 12145 dwarf corn	345	5	350	125	5	175 bu.	305	45		45	
Funks 6-72 hybrid corn	0	4.9	4.9	200	9	50	200	150		150	

(8) Indicate shipping or collection points Hopewell, Virginia(9) Grain is stored at Refuge grainery.(10) Remarks 10 acres wheat and 5 acres corn harvested during period. Corn on hand to be used as waterfowl

*See instructions on back.

trapping bait.

REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (4) A total of columns 2 and 3.
- (6) Column 4 less column 5.
- (7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

COLLECTIONS AND RECEIPTS OF PLANTING STOCK
(Seeds, rootstocks, trees, shrubs)Refuge Presquile NWRYear 19564

Species	Collections				Receipts		Total Amounts on Hand	Amount Surplus
	Amount	Date or Period or Collection	Method	Unit Cost	Amount	Source		
None.								

HAYING AND GRAZING

Refuge Presquile N W Refuge Year 1964

Permittee	Permit No.	Unit or Location	Actual Acreage Utilized	Animal Use Months	Tons of Hay Harvested	Period of Use From - To	Rate	Total Income	Remarks
None									

Totals:

Acreage grazed _____ Animal use months _____ Total income Grazing _____

Acreage cut for hay _____ Tons of hay cut _____ Total income Haying _____

Refuge	Presquile NWR	Year	1964

Permittee	Permit No.	Unit or Location	Acreage	No. of Units Expressed in B.F., ties, etc.	Rate of Charge	Total Income	Reservations and/or Diameter Limits	Species Cut
None.								

Total acreage cut over	Total income

No. of units removed B. F. _____ Method of slash disposal _____
Cords _____
Ties _____

ANNUAL REPORT OF PERSTICIDE APPLICATION

Presquile

Proposal Number

Reporting Year

1-64

1964

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
5/20-21/64	Jimson weed	Fields 2, strips a, b, c & d; Field 5, strips w, x, y, z.	Pre & Post emergence 74 acres corn	2,4-d; 4 lbs. acid equivalent per gal., low volatile ester.	38 gals.	1 lb. a.e./A	H ₂ O 15g/A	PTO sprayer @ 150 psi
6/1-2/64	Dock Lambsquarter Wild mustard Pigweed Milkweed							

10. Summary of results (continue on reverse side, if necessary) Initial kill of 85-90 % after post-emergence treatment. First rainfall June 12, with moderate to heavy rain throughout growing season. First regrowth and new germination of Jimson weed in early August after last cultivation during early July. New infestation of 70-80% at time of first frost in late October. Jimson weed overtopped dwarf corn in some areas.

2,4-d control coupled with cultivation is adequate to control weed infestation until ear maturity in early corn, but the short growing season of Jimson weed allows plant germination and maturity following last cultivation. In favorable year with late frost regrowth will equal original infestation on favorable sites.

SD

ANNUAL REPORT OF PERSTICIDE APPLICATION

Presquile NWR

Proposal Number

Reporting Year

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

1-64

1964

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
6/10/64 7/6/64	Johnson grass	Field 8 A and spot infestations, all fields.	20	Dalapon 85% 2,2-d	50 lbs. 2 applications	5 lbs. a.e./A	H ₂ O 5 gal. per acre	PTO sprayer at 150 psi

10. Summary of results (continue on reverse side, if necessary) Chemical treatment preceded disking of infested areas by 5-7 days. Two treatments of plants up to 10" plus 4 disings have reduced Johnson grass by 80% in area treated. Disking coupled with Dalapon application and in some instances hand pulling, over the past two years of exposed roots have nearly eradicated weed from 12 acres in field 8A.

Sp



Refuge Manager Roberts bombing groundhogs on the refuge road bank.



Aid Parlow standing at the field junction of the Funks G-72 and Pfitzers 12145 dwarf hybrid corn. The taller variety is Funks G-72. Little difference in height and availability could be noted on most areas after winter weathering took place.



The old concrete silo in front of the dairy barn in the process of being pulled over.



Ald Parlow and maintenanceman McFarland mopping up.



Our new neighbor. The Sathler Sand and Gravel Co. located on the mainland adjacent to the refuge North marsh.



Our new resident engineer.



Experimental plot #1 in the hardwood swamp area six years after initial clearing. Good stands of smartweed and wild millet are present but water control is needed to maintain marsh conditions and for utilization.



A typical section of the hardwood swamp adjacent to plot #1.